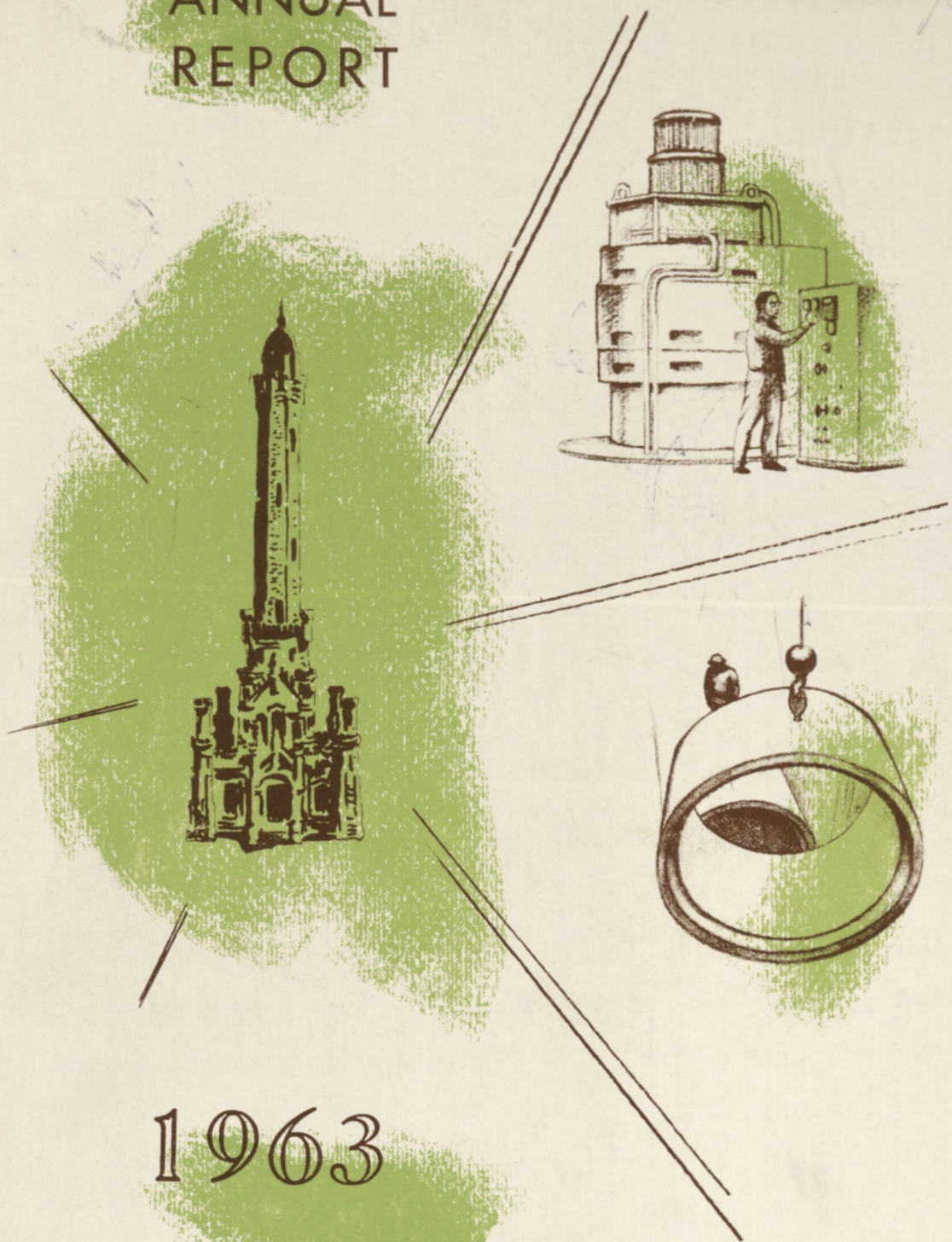


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C49ar  
1963, pt. 1

STATE WATER SURVEY DIVISION  
LIBRARY COPY

# ANNUAL REPORT



## 1963

DEPARTMENT OF WATERS & SEWERS - City of Chicago - RICHARD J. DALEY, Mayor



The Honorable Richard J. Daley, Mayor  
The Honorable Members of the City Council  
City of Chicago, Illinois

Gentlemen:

This report describes briefly  
read it, the activities and  
of water supply and drain

The year 1963 added its  
Department since its ince  
the desire and round-the-  
these two important servi

In February of the year,  
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City and, in addition, 12  
are now 11 pumping stati  
completed and placed in  
the Southwest Pumping  
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from the South District F

During the year over 20  
improvements. This, of c  
as the Southwest Pumpin  
the Central District Filtr  
and over 27 miles of wa  
report that substantial pro  
Plants.

A little over 23 miles of  
end of the year, the pub  
all sizes.

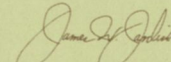
The Water Works System  
to industrial and commer  
square mile area of the C  
the rate of 1,853 million

The gross cash collections  
\$55,699,431.16. Of thi  
\$11,880,977.49 from as

The effectiveness with w  
not have been possible c  
this Department. We wi  
ner in which they dishcha

Further, we wish to thank you, Mr. Mayor, the members of the City Council, other governmental agencies, industrial groups and the public for the cooperation and assistance which was so helpful to us in achieving the progress made by this Department during the year.

Respectfully submitted,

  
Commissioner

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City of Chicago, Department  
ANNUAL REPORT,  
DEPARTMENT OF WATER  
AND SEWERS, CITY OF  
CHICAGO.

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City of Chicago, Department  
ANNUAL REPORT,  
DEPARTMENT OF WATER  
AND SEWERS, CITY OF  
CHICAGO.

DEMCO





"THE OLD WATER TOWER"

## THE CHICAGO CITY COUNCIL

1963

**HON. RICHARD J. DALEY**

**Mayor**

**PAUL T. CORCORAN (a)**

**and**

**JAMES C. MURRAY (b)**

**President Pro Tem**

**JOHN C. MARCIN**

**City Clerk**

**MORTON GORDON**

**Deputy City Clerk**

### ALDERMEN

#### Ward

1. John D'Arco (a)
2. Michael Fio Rito (c)
3. William H. Harvey
4. Ralph H. Metcalfe
5. Claude W. B. Holman
6. Leon M. Despres
7. Robert H. Miller
8. Nicholas J. Bohling
9. James A. Condon
10. Dominic J. Lupo
11. Emil V. Pacini (a)
12. John J. Buchanan (d)
13. Stanley J. Nowakowski (e)
14. Arthur V. Zelezinski

#### Ward

13. David W. Healy (d)
14. Joseph P. Burke
15. Joseph J. Krska
16. Paul M. Sheridan
17. Arthur A. Slight (a)
18. Charles Chew, Jr. (d)
19. James C. Murray
20. Thomas F. Fitzpatrick
21. Kenneth E. Campbell
22. Samuel Yaksic (d)
23. Otto F. Janousek
24. George J. Tourek
25. Benjamin F. Lewis (f)
26. Vito Marzullo

#### Ward

26. Stanley M. Zydlo (d)
27. Harry L. Sain
28. Alphonse R. Tomaso (d)
29. Thomas F. Burke
30. Daniel J. Ronan
31. Thomas E. Keane
32. Robert J. Sulski
33. Robert Brandt (d)
34. Rex Sande
35. Casimir C. Laskowski
36. Robert L. Massey
37. Paul T. Corcoran
38. William J. Cullerton

#### Ward

39. Philip A. Shapiro
40. Nathan J. Kaplan (d)
41. Harry Bell (a)
42. Edward T. Scholl (d)
43. Mayer Goldberg (d)
44. Mathias Bauler
45. Thomas Rosenberg
46. Edwin P. Fifielski (d)
47. James F. Young (a)
48. Joseph R. Kerwin (d)
49. John J. Hoellen
50. Morris Hirsh (a)
51. Robert J. O'Rourke (d)
52. Paul T. Wigoda
53. Jack I. Sperling

(a) Served to April, 1963

(b) Elected April, 1963

(c) Served from April, 1963 to May, 1963

(d) Inducted April, 1963

(e) Deceased October 21, 1963

(f) Deceased February 28, 1963

Robert F. Campbell, Record Clerk

Michael Coletta, Assistant Sergeant-at-Arms

Alec Busta, Assistant Sergeant-at-Arms

William F. Harrah, Sergeant-at-Arms

Clement J. McDermott, Assistant Sergeant-at-Arms



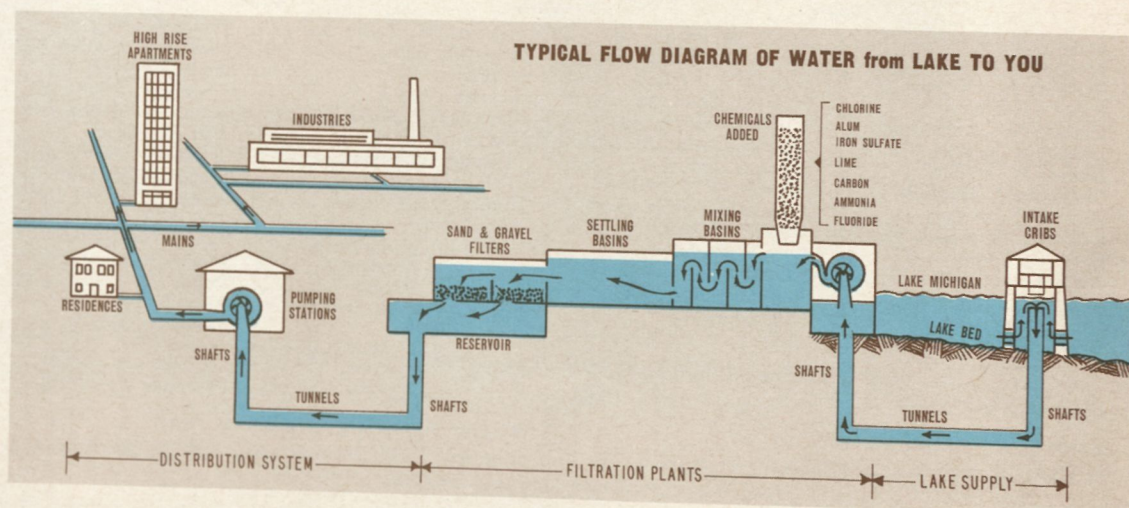
## Do You Know That?

- ★ During the last 10 years, the Chicago Water System has placed into operation 10.61 miles of water tunnel 16 feet in height and 2.85 miles of tunnel 12 feet in height. At the end of 1963 there were 74.6 miles of tunnels in service.
- ★ The Chicago Water System continuously monitors the Lake water to protect against radioactivity hazards—the first public water system to do so.
- ★ The Chicago Water System's electron microscope has reduced emergency bacteriological test periods from 72 hours to about 18 hours in determining the presence or absence of coliform bacteria in water samples. This powerful microscope can magnify as much as 32,000 diameters—the diameter of a penny to 2,000 feet in width.
- ★ In May of 1956, the Chicago Water System began fluoridating the water supply and, since that time, has added fluorides to the water in properly-controlled proportions monitored around the clock.
- ★ The Chicago Sewer System collects sanitary waste and surface drainage in approximately 3,948 miles of sewers varying in size from 12 inches to 21 feet in diameter. During the last 10 years, a total of about 374 miles of sewers were constructed and placed in service in the System.
- ★ The National Board of Fire Underwriters has rated the Chicago Water System in Class I, the highest rating given by the Board. No other city over 1,000,000 population has been so classified by the Board.
- ★ The Chicago Water System is entirely self-supporting from revenues received from the sale of water and no property or other tax monies are used to pay the operating or other costs of the System.
- ★ The Chicago Water System during the last 10 years has invested approximately \$220,000,000 in water works capital improvements—about three times the amount invested for this purpose during the previous 15-year period.
- ★ The Chicago Water System provides water service to a total population of about 4,500,000 in Chicago and 61 adjacent suburbs in an area of 392 square miles.



The Old Water Tower that stands at Michigan and Chicago Avenues was completed in 1869 and withstood the Chicago Fire of 1871. Originally it housed a standpipe, 3 feet in diameter and 138 feet high, that served to equalize the pressure and minimize the pulsations of the water flow in the mains. Now it has become a landmark dear to Chicagoans.

- ★ The Chicago Water System pumps an average of over one billion gallons a day to its consumers. A record peak hourly pumpage was established during the summer of 1962 at a rate of 1,878 million gallons a day.
- ★ The Chicago Water System distributes its water through approximately 4,060 miles of water mains having pipe diameters from 6 to 60 inches. During the last 10 years a total of 325 miles of water pipe was installed and placed in service in the distribution system.
- ★ The Chicago Water System has in use over 45,000 fire hydrants to aid in protecting citizens and property from fire hazards. These hydrants stand ready to use at all times.
- ★ During the last 10 years, 24 new pumps having a total capacity of 1,430 million gallons a day were installed in the Chicago pumping stations either as replacements or additions.
- ★ The South District Filtration Plant, with a peak capacity at the rate of 600 million gallons a day, is now the largest filtration plant in the world and the new Central District Filtration Plant will be three times as large, having a peak capacity at the rate of 1,750 million gallons a day.





expansion

1963

Several major expansion projects were completed or underway in the Chicago Water Works and Sewer Systems in 1963. These capital improvement construction projects were designed to increase System capacities and reliability, and to otherwise improve Chicago's water supply and drainage services.

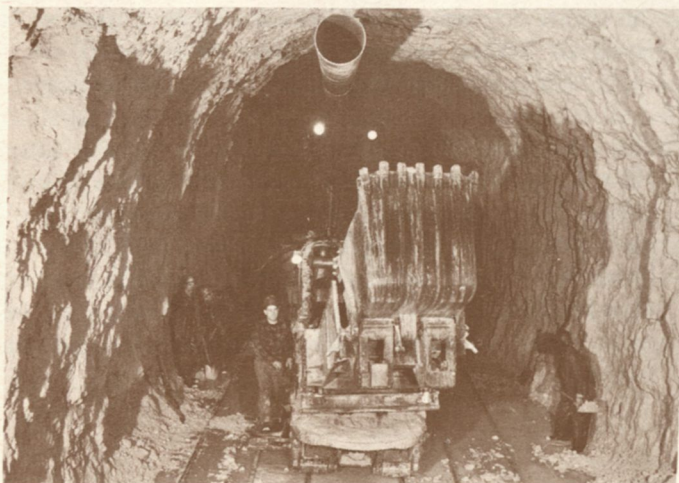
- ★ Good progress was made in the construction of the new Central District Filtration Plant which will furnish high quality filtered water to the central and north two-thirds of the area supplied by the Chicago Water Works System. When completed this Plant will be by far and away the largest filtration plant in the world with an estimated peak capacity of 1,750 millions gallons a day.
- ★ Plans were completed and construction started during 1963 to expand by fifty percent the capacity of the South District Filtration Plant which now has a peak capacity of about 600 million gallons a day. This Plant, placed in full operation in 1947, furnishes high quality filtered water to the south one-third of the area supplied by Chicago Water Works System.
- ★ The new Southwest Pumping Station, the eleventh station in the Chicago System, was completed and placed in service in March, 1963. This Station will make possible the maintaining of more satisfactory pressures in the far southwest section of the City where there is a considerable amount of high ground area. It adds a rated pumping capacity of 175 million gallons a day with provision for the installation of two additional 50 million gallon a day pumps in the future when needed.
- ★ The Water Distribution Division work forces constructed and placed in service 27.42 miles of water mains in 1963. These mains were installed in all sections of the City and improved the water service to thousands of Chicago consumers.
- ★ A little over 23 miles of new sewers, 816 manholes and 112 catch basins were added to the public sewer system. Drainage was improved in all areas of the City.



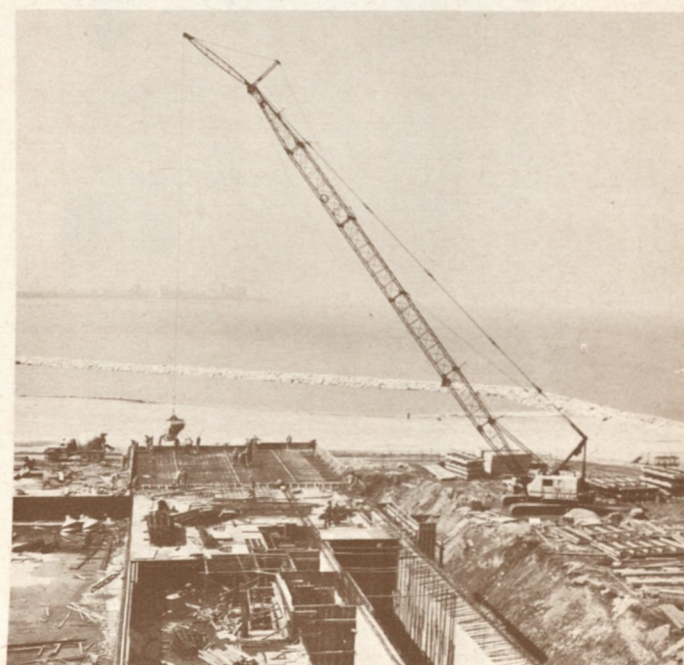
NEW SEWER



NEW WATER MAIN



NEW WATER TUNNEL



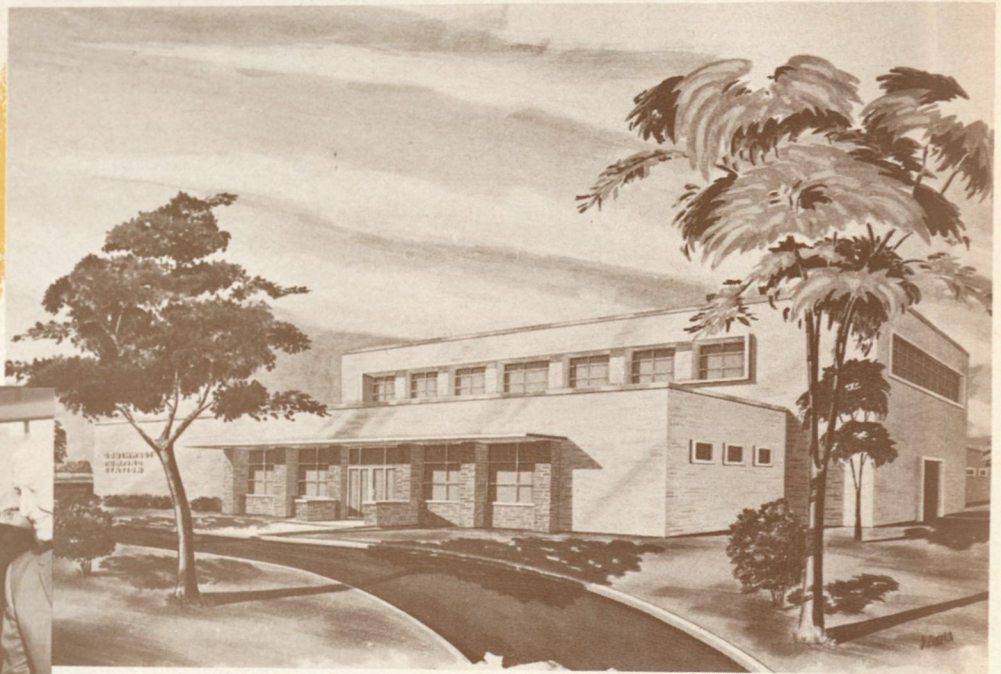
NEW ADDITION TO SOUTH DISTRICT FILTRATION PLANT



1963



Mayor Richard J. Daley throwing switch that put the new Southwest Pumping Station in operation.



The Southwest Pumping Station.

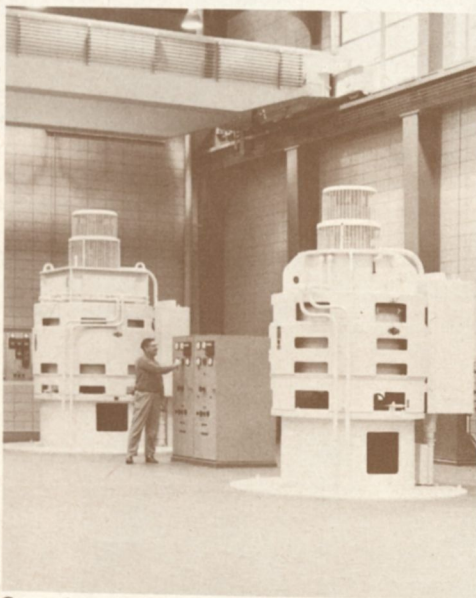
## the new southwest pumping station

A new pumping station, located in the southwest section of the City was placed in service in March, 1963 and is the eleventh pumping station in the Chicago Water Works System. It serves approximately 285,000 people living in the far southwest area of the City and in the twelve adjacent suburbs which obtain their water supply from the Chicago System.

The new Station occupies a prominent place in a four-square-block intergovernmental development which includes a seven-acre park and elementary school.

A new 12-foot tunnel, the Columbus Avenue Tunnel, feeds water into this Station. It was driven through rock, is approximately three miles long and connects with the existing tunnel at 74th Street and Western Avenue to transport filtered water from the South District Filtration Plant to the Southwest Station.

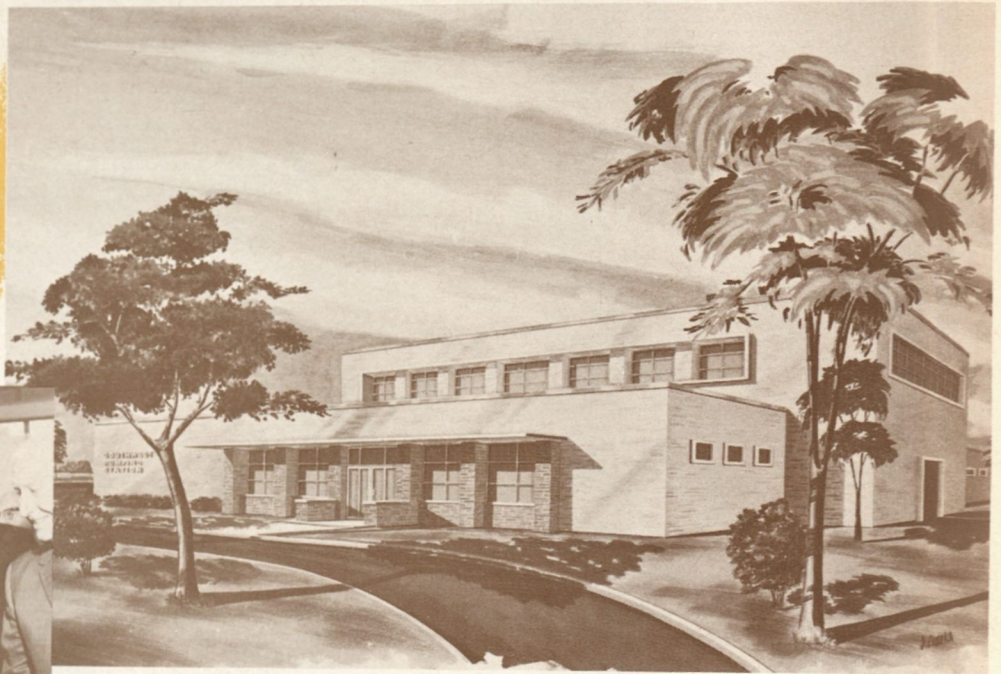
The initial installed capacity of the Station pumping units is 175 million gallons a day. This is provided by three 50 million gallon a day pumps, each driven by a 2,250 horse-power electric motor, and one 25 million gallon a day pump driven by a 1,250 horse-power motor. Facilities are provided for future installation of two additional 50 million gallon a day pumps which will boost ultimate capacity to 275 million gallons a day when needed.



Control panels and motors for pump No. 2 and pump No. 4.



1963



The Southwest Pumping Station.



Mayor Richard J. Daley throwing switch that put the new Southwest Pumping Station in operation.

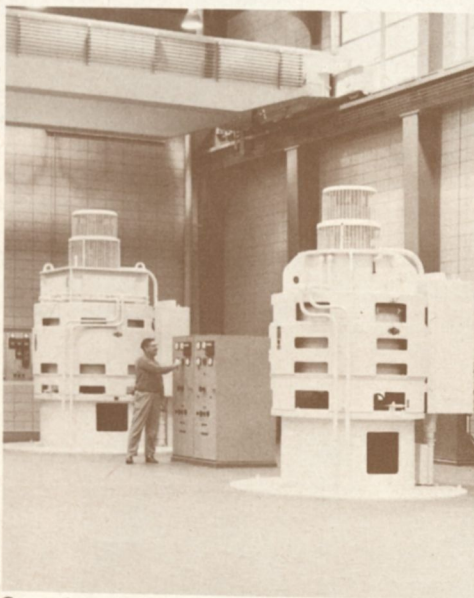
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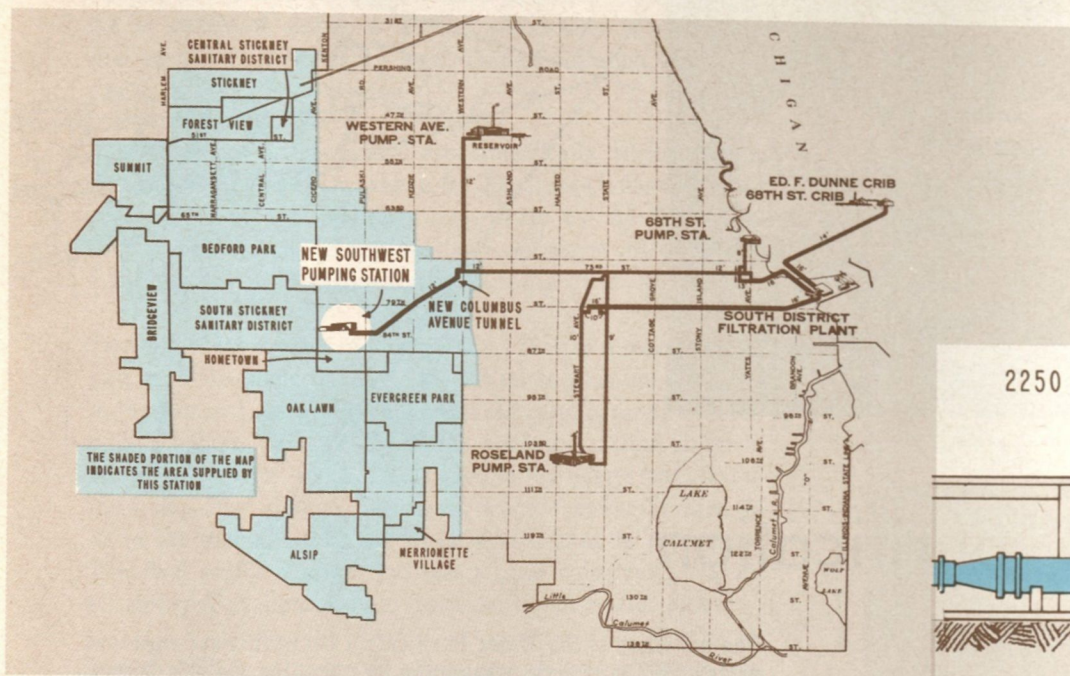
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Control panels and motors for pump No. 2 and pump No. 4.





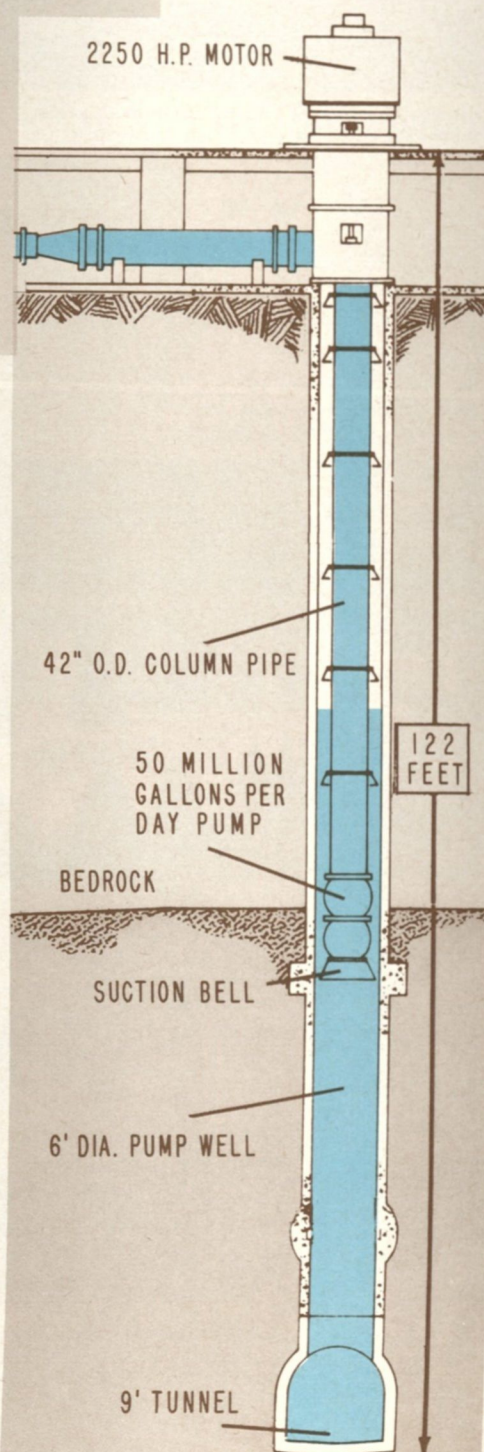
Area served by the Southwest Pumping Station.

The electrically-driven pumping equipment is of the submerged, vertical-turbine, two-stage, high-lift type. This type of equipment is the first of its kind to be installed in the Chicago Water Works System. It eliminates the need for a deep and costly pump pit and is believed to be the most modern and efficient pumping equipment of its kind today.

The pumps discharge through individual venturi meters and electrically-operated valves into two 48 inch ductile iron pipe header systems; one along the east side of the Station and the other along the west side, with an outlet to the distribution system at each of the four corners of the Station.

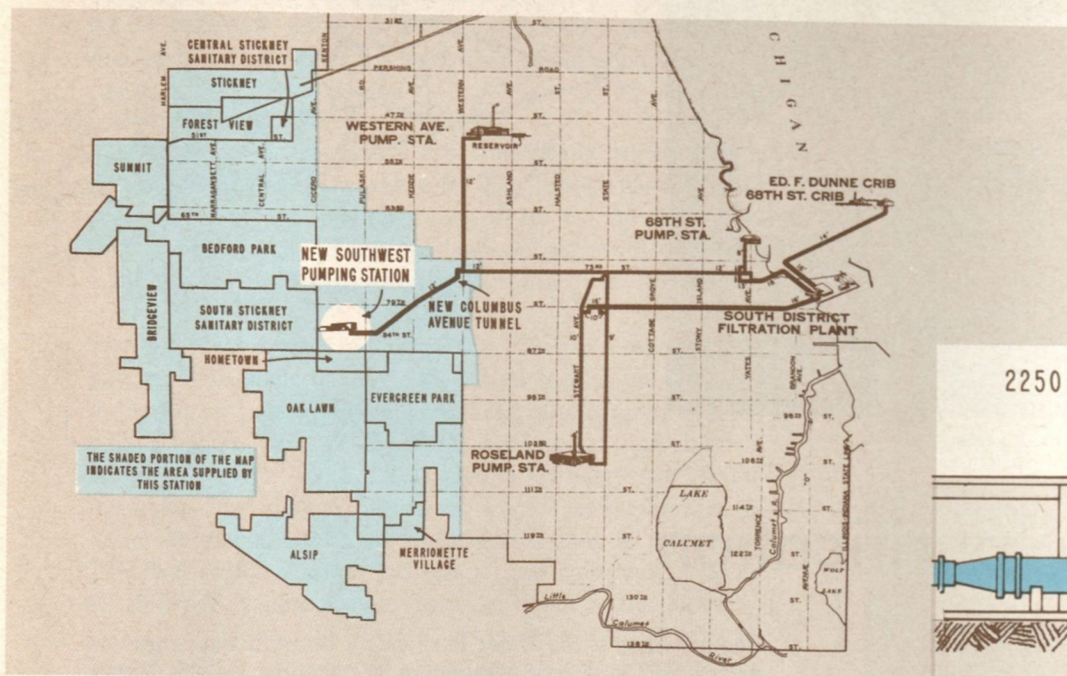
Motors for the large pumps can be activated either at the switch-gear or at a pump unit. Discharge pressures and quantities of water pumped are recorded on an instrument panel in the office of the Station's Chief Operating Engineer and the electrically-operated valves of the pump discharge systems can also be controlled from the panel. An annunciator panel also is located in the office to indicate pump operation. It is coupled with an alarm system to warn of malfunction of station equipment.

A dehumidifying system is installed in the basement to protect equipment. Emergency lighting equipment operated by batteries and an overhead heavy duty electric crane to handle heavy pump equipment when it is undergoing overhaul also are provided in the Station.



Southwest Pumping Station — cross section of one of the four pumping units showing how water is raised by suction from the tunnel and driven into the mains of the distribution system.





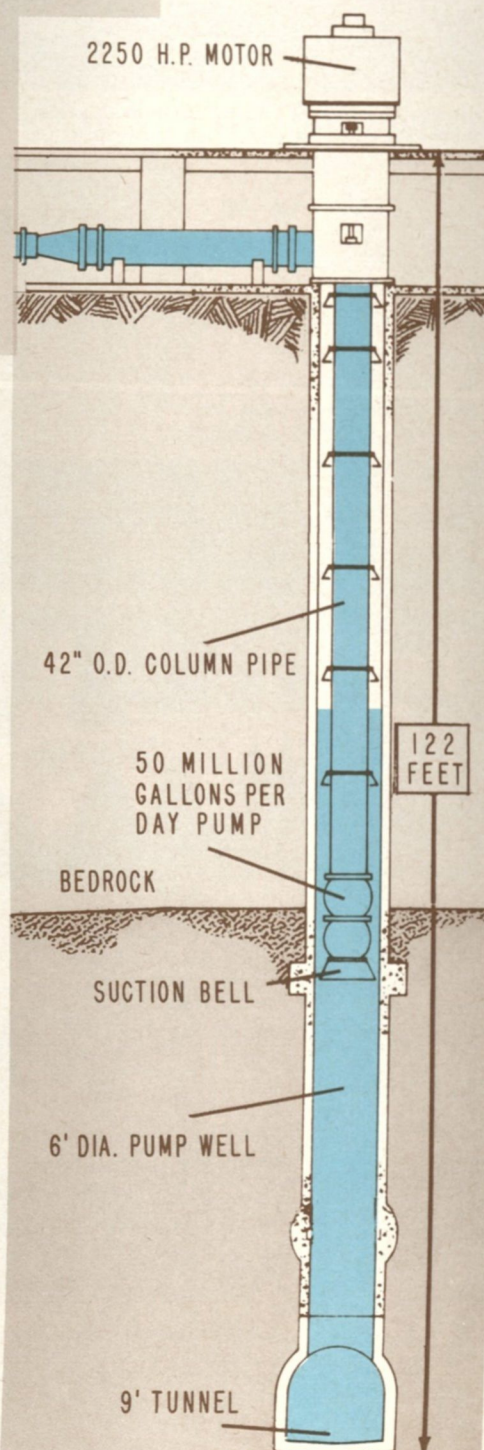
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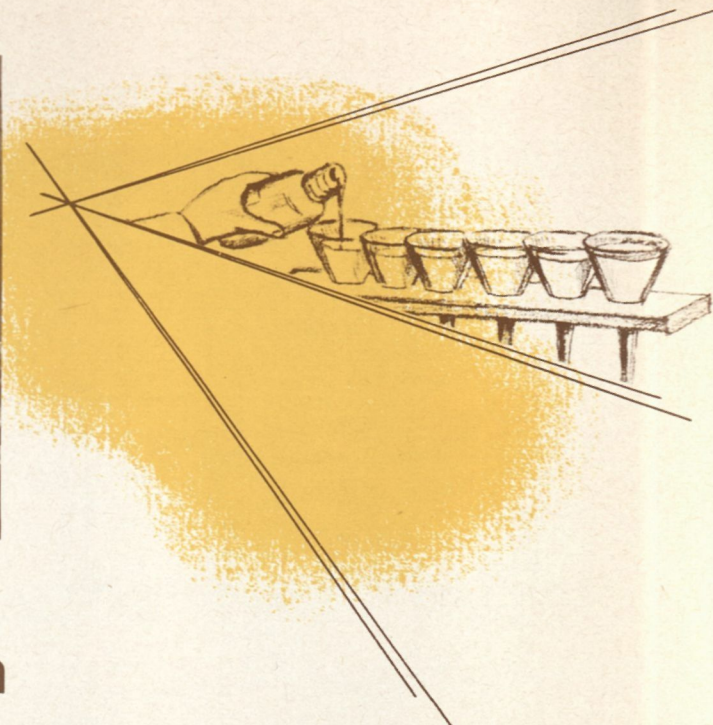


Southwest Pumping Station — cross section of one of the four pumping units showing how water is raised by suction from the tunnel and driven into the mains of the distribution system.



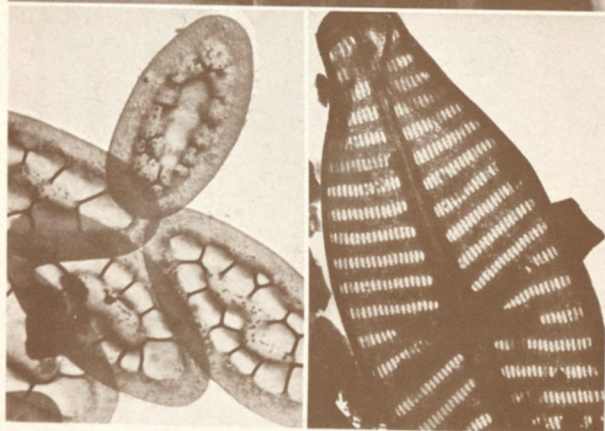
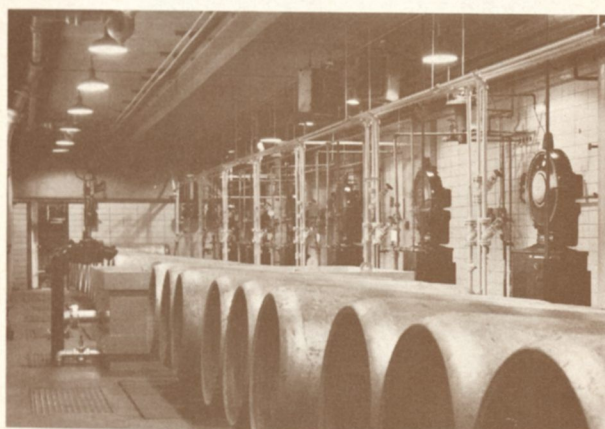


Regular chemical test being performed at the South District Filtration Plant Laboratory.



## purification

The capacity of the chlorine scale room at South District Filtration Plant was expanded 50% during 1963.



Micrograms of two plankton organisms found in untreated lake water. They have been magnified 21,000 times by the Department's electron microscope.

The activities of the Water Purification Division were expanded during 1963 to include preparation for operating the new Central District Filtration Plant and for starting the work on the fifty percent expansion of the South District Filtration Plant.

The South District Filtration Plant, which supplies filtered water to the southern one-third of Chicago and the adjacent suburban community customers, had increased its output to the point where it was necessary to enlarge the Plant. This work was started on a major scale in 1963 with the construction of the substructure for two additional settling basins and forty additional sand filters. Plans and specifications were prepared for mixing and sediment removal equipment, filter sand and piping, and auxiliary chemical feeding equipment. It is anticipated that part of this equipment will be available for use during the summer of 1964.

The South District Filtration Plant supplied an average of 383.5 million gallons of water a day in 1963. The Plant produced 559.2 million gallons on July 2, the maximum day, and at the hourly rate of 662 million gallons a day at 5:00 p.m. on July 12, the maximum rate for the year.

At the year end, the new Central District Filtration Plant, which is rapidly being brought to completion, was prepared to furnish in an emergency the full requirements of chlorinated Lake water to the Central and North Tunnel Systems. The Plant did assist in supplying chlorinated water to the Wilson Avenue Tunnel System (the north section of the City) during the summer months. The tunnel connection from the Filtration Plant to the Chicago Avenue Tunnel also was completed during the year and this will provide a secondary source of supply for the central section of the City.

The Water Safety Control Section kept the Lake water under continuous surveillance, collected 56,470 water samples, reviewed plans and furnished sanitary supervision over water works construction and sterilized many miles of new water mains, tunnels and shafts.

The chemical and bacteriological laboratories tested 225,173 samples of water during the year as a part of the program of monitoring the quality of the water supply going to the City and suburbs supplied by the System.

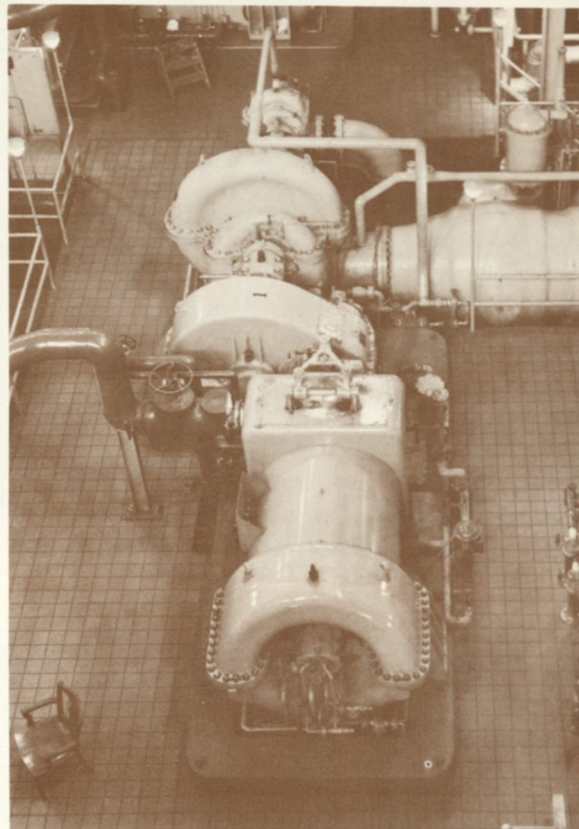


The much-needed new Southwest Pumping Station was placed in operation in March of the year. The Station is a most valuable addition and will make possible more satisfactory pressures in the far southwest section of the City where there is a considerable amount of high ground area. This new Station is number eleven in the Chicago System.

The eleven pumping stations are strategically located in the City and pump the water used in the 392 square miles that make up the Chicago and suburban area served by the System. At each station the pumps and auxiliary equipment are housed in a building which is architecturally suited to its surroundings.

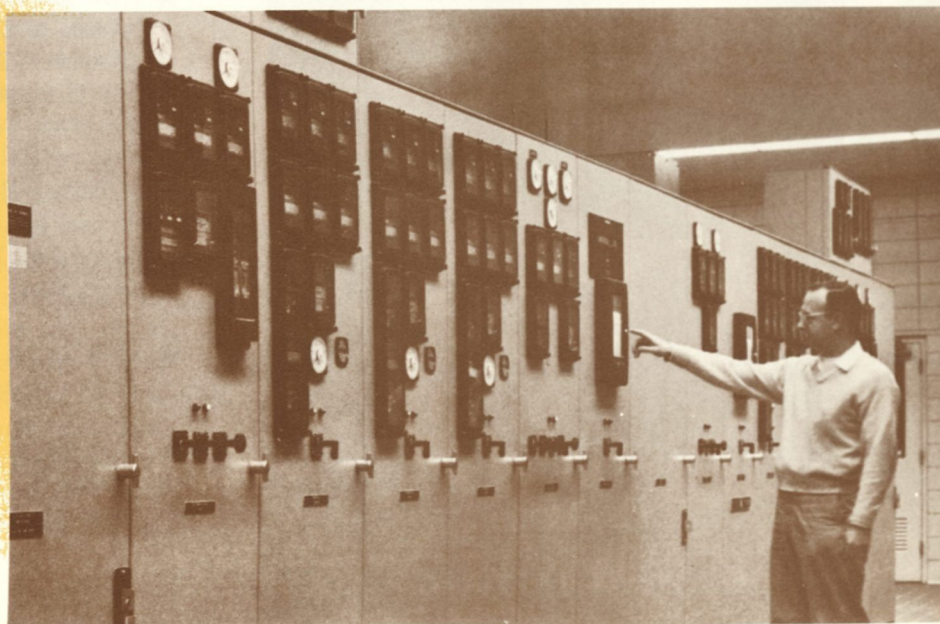
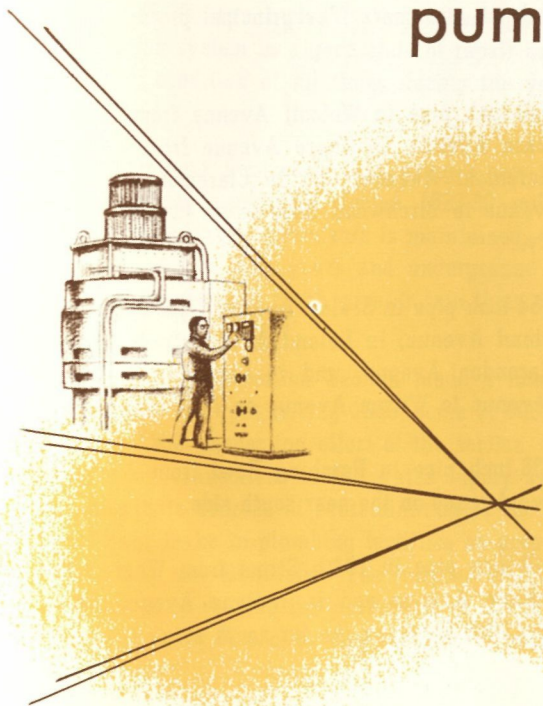
Pumping of lake water in Chicago dates back to a modest beginning with one pump in 1854. Today there is a total of 55 pumps in the pumping stations with a combined rated capacity of 3,030 million gallons per day. Six of the stations generate steam to drive the turbines which are coupled to the pumps and, in the remaining five stations, purchased electric power is used to drive the motors which are directly connected to the pumps. This dual source of power provides a greater degree of over-all reliability than normally may be found in other large cities.

During 1963, a total of 381,046 million gallons of water was pumped by the stations into the distribution system. The highest daily pumpage was 1,450 million gallons on July 1 and at 4:00 p.m. of the same day a peak hourly rate of 1,853 million gallons per day was recorded. If this peak hourly rate had been maintained for 24 hours, a total of 1,853 million gallons would have been pumped in the 24-hour period.



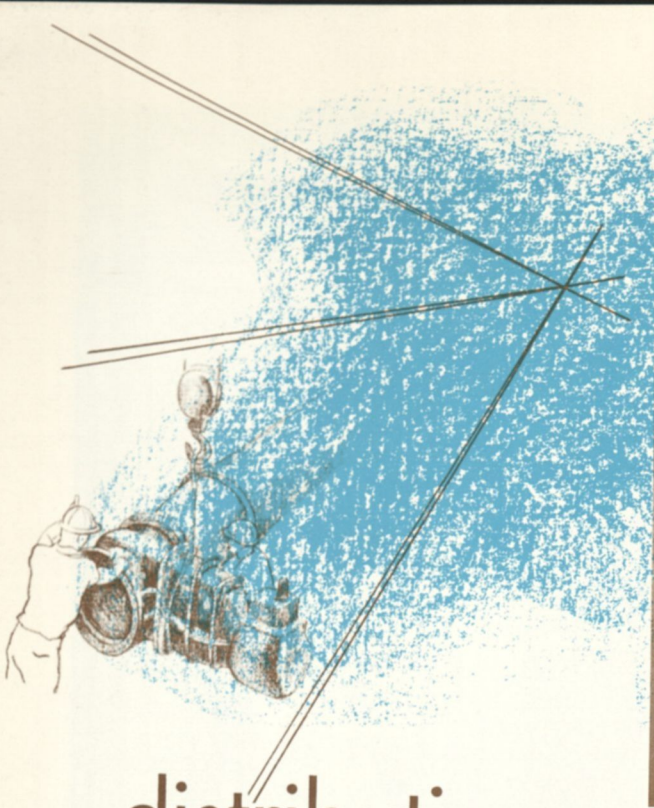
One of the latest type steam turbine driven, 80 million gallons per day, centrifugal pumps at Springfield Avenue Pumping Station.

## pumping

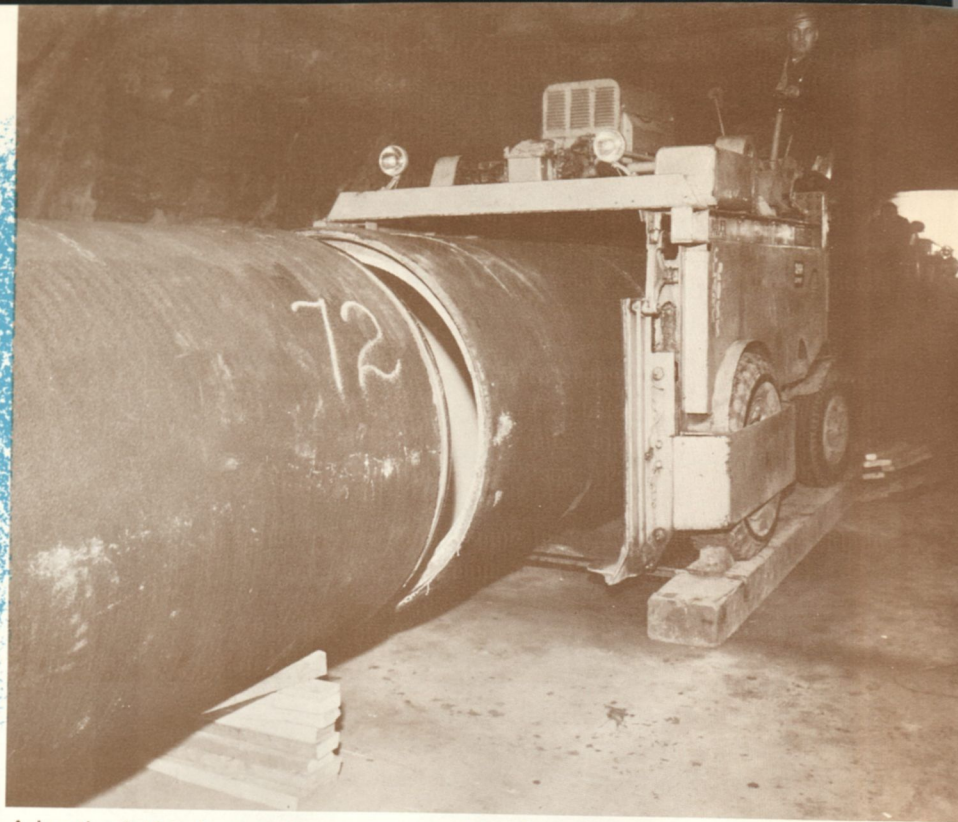


High voltage switch gear in the new Southwest Pumping Station

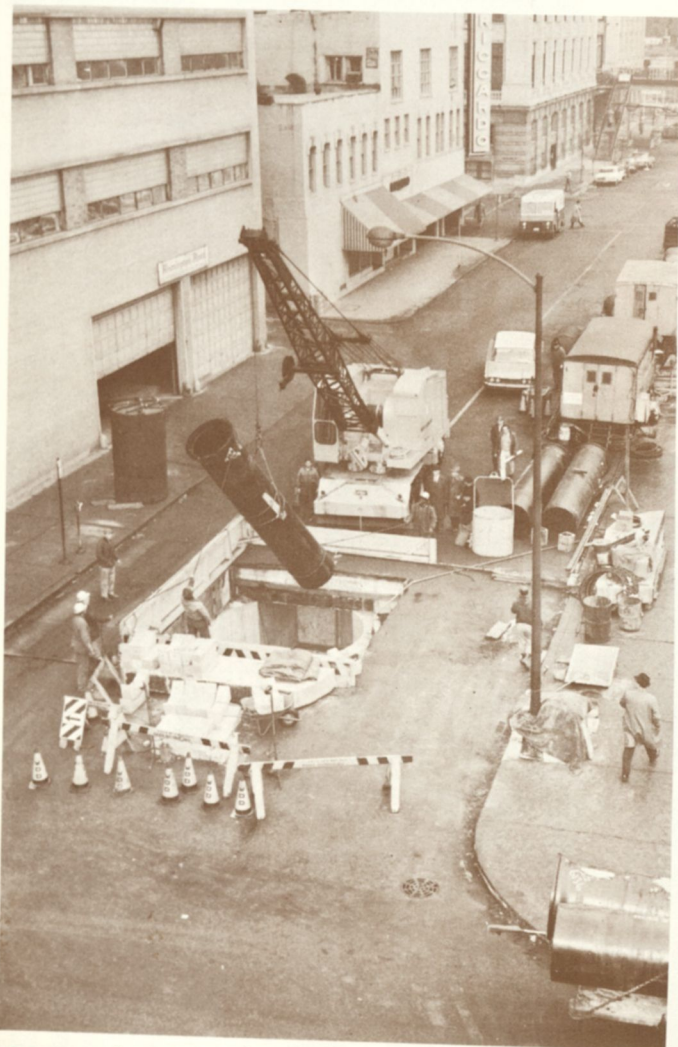




## distribution



A length of 48 inch concrete water main is driven home with special equipment in the existing LaSalle Street Tunnel under the Chicago River.



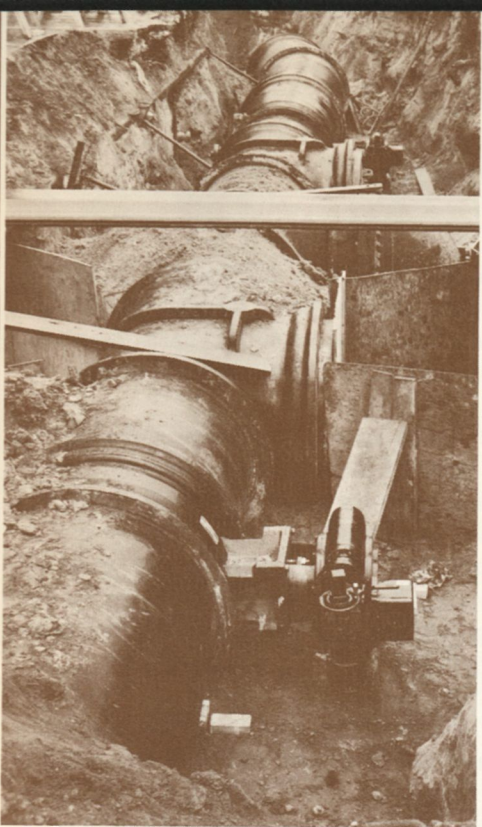
Lowering a length of 36 inch diameter ductile iron water main into a shaft. The main was installed in the old freight tunnel under the Chicago River.

The Distribution Division work crews installed 27.42 miles of mains in 1963, of which 9.22 miles were 24-inch or over in diameter. As of December 31, 1963, there were 4058.45 miles of pipe varying in size from 6 to 60 inches in diameter in the distribution system.

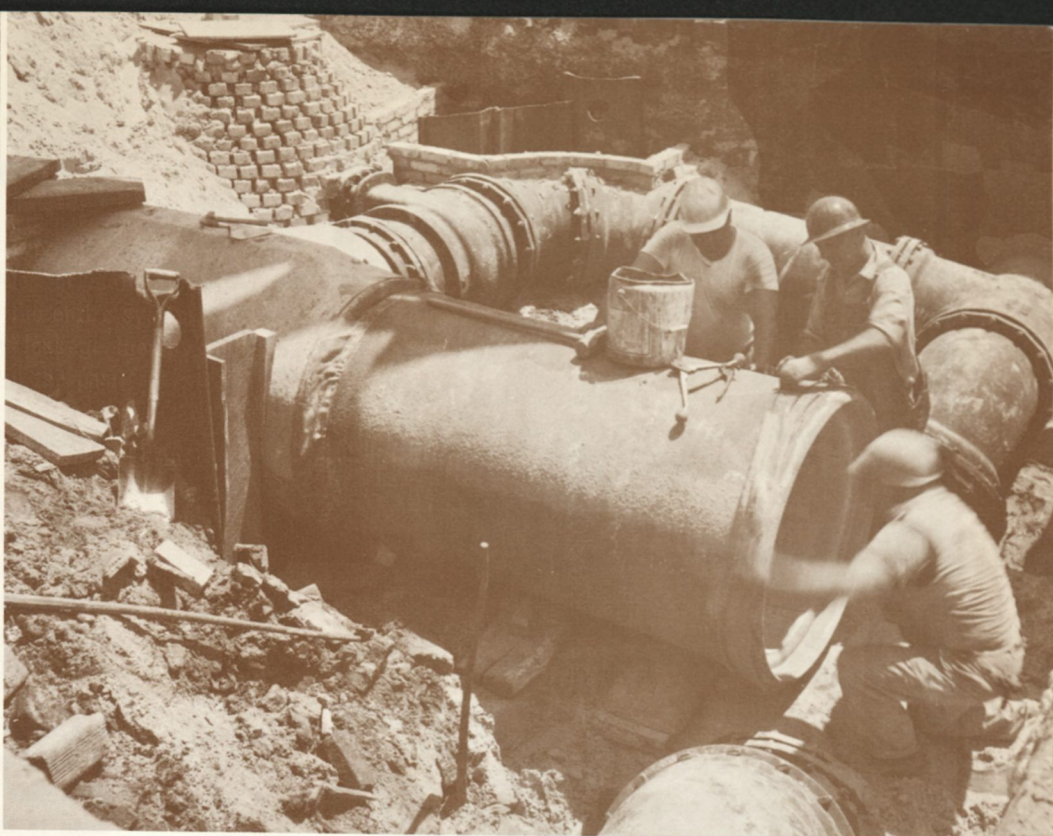
Water mains were installed in all sections of Chicago to improve service to thousands of consumers. The principal projects completed were:

- ★ 7,470 feet of 30-inch pipe in Wolcott Avenue from Touhy Avenue to Chase Avenue; in Chase Avenue from Wolcott Avenue to Claremont Avenue; and in Claremont Avenue from Chase Avenue to Birchwood Avenue on the far north side of the City.
- ★ 10,582 feet of 54-inch pipe in Seeley Avenue from Eastwood Avenue to Leland Avenue; in Leland Avenue from Seeley Avenue to Clarendon Avenue; and in Clarendon Avenue from Leland Avenue to Wilson Avenue on the north side.
- ★ 5,700 feet of 36-inch pipe in Pershing Road from Ashland Avenue to Lowe Avenue on the near south side.
- ★ 8,856 feet of 48-inch pipe in 104th Street from Wentworth Avenue to Indiana Avenue and in Indiana Avenue from 104th Street to 111th Street on the far south side.





Alterations and additions to the 54 inch diameter "header-system" water mains at the Thomas Jefferson Pumping Station.



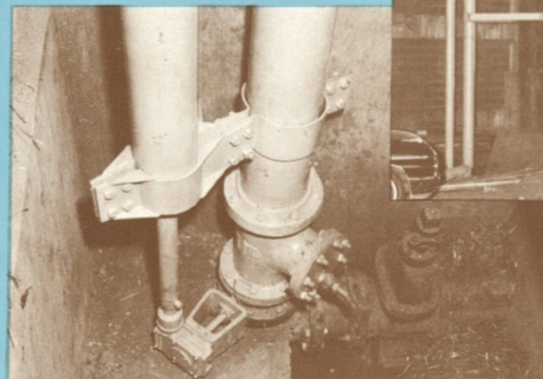
A 24 inch water main with a side connection and valve is lowered to make way for a new 36 inch water main.

★ 7,570 feet of 42-inch pipe in Indiana Avenue from 111th Street to 113th Street; in 113th Street from Indiana Avenue to Cottage Grove Avenue; and in Cottage Grove Avenue from 113th Street to 119th Street on the far south side.

Division forces also kept the 4,058 miles of water mains, 41,000 valves, 45,000 fire hydrants and other appurtenances in the distribution system in a good state of repair and in satisfactory operating condition at all times during the year.

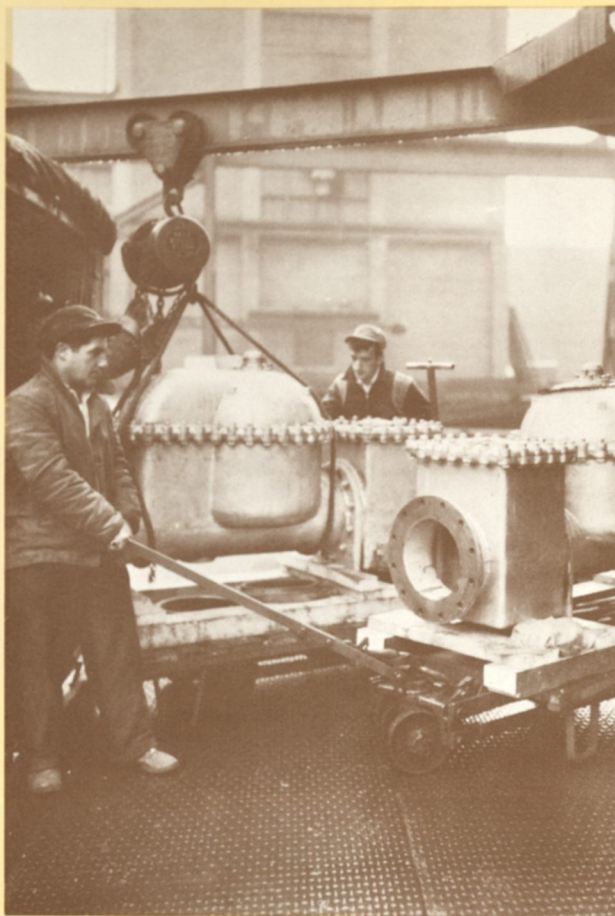
The Water Leak Control Section, using a new type of electronic leak detecting equipment, tested 1023.30 miles of mains for underground leaks. If this rate is maintained, the entire system can be tested in four years and underground leakage thereby will be reduced at a much greater rate than in the past.

The Plumbing Inspection Section made a total of 143,711 inspections of all types during 1963, some 36,000 more than were made in 1962. Inspection effort of the section was concentrated on existing connections to the water supply system to prevent and eliminate sources of contamination of the water; and also, to discover leaks in plumbing facilities on properties and see to it that they are eliminated. The purpose of these plumbing inspections is to enforce the provisions of the Municipal Code of Chicago in every respect as they concern the public water supply.



New high rise fire hydrant designed by Water Distribution engineers to meet the fire protection needs on two level streets such as Lake Shore Drive at Randolph Street.





An electronic machine system is used to bill  
some 504,023 water accounts.

## metering

During the year there were 5,212 meters installed on water services and the Meter Division maintained a control and a detailed record on each one of the 159,885 meters in service in the System at the year end.

A total of 24,625 meters was tested in the Division shop and 16,964 of these had to be completely reconditioned. Reconditioning a meter entails tearing the meter down, cleaning every part, replacing any defective parts, and then reassembling the meter and testing its accuracy. In addition to this, the Division field forces repaired 20,244 meters in the field at the site of installation.

A member of the Division staff supervised the testing of 5,200 new meters at the manufacturers' plants to determine compliance with specifications before shipment to the Division. This practice has resulted in a significant saving on each shipment of new meters.

In the fall of 1963, the tempo of the meter installation program was increased by assigning additional field crews to this activity in order to keep the program more nearly geared to current requirements.

## assessing, billing and collecting

During the year, some 1,288 new water accounts were placed on the books bringing to 504,023 the total number of accounts serviced by the Water Collection Division at the end of the year. Of the total accounts, 344,138 were assessed-rate accounts and 159,885 were metered-rate accounts.

The gross cash collections made by the Division for the Water Fund during 1963 totaled \$55,699,431.16, a little less than \$16,000 more than in 1962. These collections include \$11,880,977.49 from assessed-rate water accounts, \$43,528,981.73 from metered-rate water accounts and \$289,471.94 from miscellaneous sources.

Rate takers made 69,824 field inspections for assessment purposes, 1,147,622 visits to obtain water meter readings, and 65,281 visits to enforce collection of delinquent water bills. Rate takers collected a total of \$685,228.74 in the field on shut off visits. In addition, the Division field men made 7,284 inspections in response to complaints of excessive bills, leakage and misuse of water.





## capital improvements expenditures 1963

During 1963 a total of over \$19.5 million was invested in the improvement of plants and facilities of the Chicago Water Works System. The expenditure for the principal projects, included in the total were \$6,444,781 to construct new water mains; \$889,387 to complete the new Southwest Pumping Station and construct improvements in the other ten stations. \$459,826 to complete the Columbus Avenue Tunnel to the Southwest Pumping Station and construct the new north side tunnel connections; \$6,689,007 for construction projects at the Central District Filtration Plant which is now nearing completion, and \$4,812,450 for construction to expand the South District Filtration Plant capacity by fifty percent.

THE PRELIMINARY FIVE-YEAR WATER WORKS  
CAPITAL IMPROVEMENT PROGRAM 1964-1968  
CALLS FOR AN EXPENDITURE OF \$63,449,000

## FINANCIAL STATEMENTS\* WATER WORKS FUNDS

### BALANCE SHEET December 31, 1963

ASSETS	
Utility Plant in Service .....	\$344,208,425
Less Reserve for Depreciation .....	60,075,646
	<u>\$284,132,779</u>
Work in Process .....	98,429,323
Net Fixed Assets .....	<u>\$382,562,102</u>
Equity in Working Capital Funds .....	9,179,062
Cash—Restricted for Capital Expenditures .....	476,378
Cash—Unrestricted .....	11,883,395
Accounts Receivable .....	3,481,497
Inventories .....	716,456
Total Assets .....	<u>\$408,298,890</u>

LIABILITIES AND CITY EQUITY	
City of Chicago Equity .....	\$247,948,383
Certificates of Indebtedness Outstanding .....	154,000,000
Advances in Aid of Construction .....	499,182
Accounts Payable .....	4,779,242
Accrued Interest Payable .....	1,072,083
Total Liabilities and City Equity .....	<u>\$408,298,890</u>

### EXPENDITURES FOR CAPITAL IMPROVEMENTS Revenue and Water Certificate Funds Combined

(Appropriation Expenditure Basis)	
Water Mains and Appurtenances .....	\$ 6,444,781
Central District Filtration Plant .....	6,689,007
South District Filtration Plant .....	4,812,450
Tunnels .....	459,826
Pumping Stations .....	889,387
Other .....	259,897
	<u>\$ 19,555,348</u>

### INCOME STATEMENT Year Ending December 31, 1963

Revenues:	
Water Sales .....	\$ 55,868,001
Other Operating Revenues .....	492,310
Non-operating Income .....	505,134
Total Revenues .....	<u>\$ 56,865,445</u>

Expenses:	
Operating Expenses Excluding Depreciation .....	\$ 34,026,703
Depreciation .....	5,127,424
Interest on Certificates of Indebtedness† .....	2,620,281
Other .....	42,105
Total Expenses .....	<u>\$ 41,816,513</u>

Net Income for Year (Invested in Capital Improvements) .....	\$ 15,048,932
City of Chicago Equity—January 1 .....	232,313,875
Surplus Adjustments, Net .....	85,576
City of Chicago Equity—December 31 .....	<u>\$247,948,383</u>

\*These statements represent a preliminary financial summary of the water funds and are not final. Final statements will be included in the City Comptroller's report for 1963.

†Net of interest charged to construction:  
\$2,940,431.





An 11 foot by 12½ foot sewer, part of the Blackhawk Street Sewer System under construction in Potomac Avenue, west of Damen Avenue.

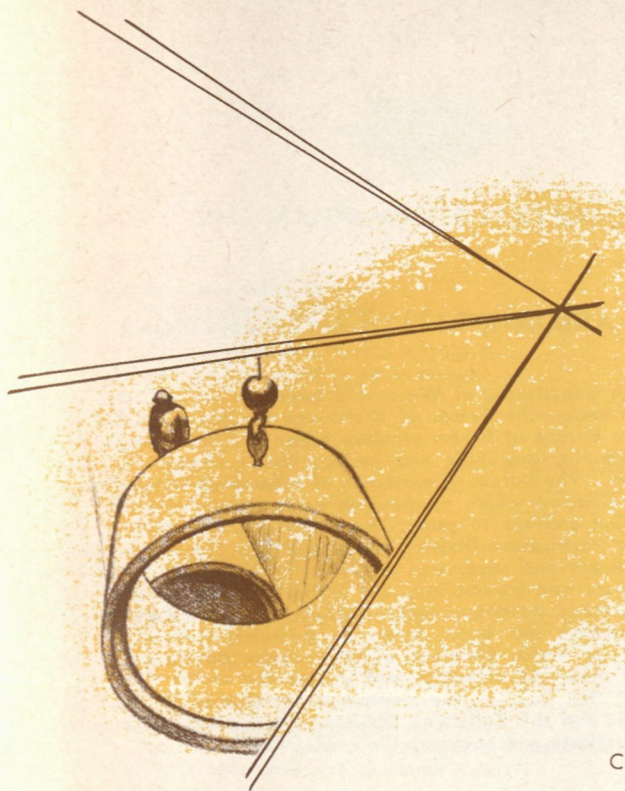


Shoring being installed along section of the Blackhawk Street Sewer System.

During the year, 23.26 miles of sewers, varying in size from 10 inches to 15 feet in diameter, were added to the public sewer system. At the end of 1963, there were 3,949 miles of sewers in the System, ranging in size from 10-inch diameter tile pipe to massive 21.5 feet by 19.3 feet horseshoe-shaped, reinforced concrete conduits. In addition, 1,102 catch basins and 816 manholes were built.

The Chicago System is what is known as a "combined sewer system," a system in which two types of flow are carried, (1) the dry weather flow carrying sanitary waste and surplus water from homes, commercial buildings and industrial plants and (2) storm water flow from roof, street, sidewalk, parking area and other impervious surfaces. The dry weather flow is transported by the City sewers to the interceptor sewers maintained by the Metropolitan Sanitary District of Greater Chicago. The interceptor sewers in turn transport the dry weather flow to the sewage treatment plants, also under the jurisdiction of the District. The storm water bypasses the interceptor sewers and, by means of various controls and outfalls, is discharged into the Chicago River, its branches and the Sanitary and Ship Canal. The Bureau of Sewers, therefore, is responsible for the maintenance and operation of the Chicago public sewer system which is primarily a transport system.





Bureau of Sewer's field crews engaged in; A-Sewer repair work, B-Constructing a manhole, C-Cleaning catch basins, D-Heightening a weir to control flow of water.

## sewers

Many of the larger "trunk sewers" in the Chicago System, ranging in size from two feet to 20 feet in diameter, are constructed of sewer brick. These are the oldest portion of the System, many dating back to 1856, and are located principally in Chicago's "Loop" district. The fact that these sewers have withstood increasingly heavy pounding from surface traffic, heavy air conditioning loads, construction of deep foundations for new buildings and heavy storm run-off for over a century is a tribute to the original workmanship. Inspections of some of the old brick sewers reveal that many have changed from a circular to a flattened oval or lopsided shape in conformity with the changes in the outside pressures upon them. Situations such as these complicate the maintenance problems in this vast Sewer System.

Modern equipment such as sewer scraping machines, power rodders, "orange peel" catch basin cleaners, 2,700 gallon tank water flushers and other equipment are used daily in the sewer cleaning operations of the Bureau. During the year about six million feet of sewers were scraped and about 276,500 catch basins were cleaned.

Likewise, modern equipment such as truck-mounted or portable air compressors, truck cranes, high lifts, pumps and blowers are used in the repair of sewers. During the year 12,282 repair jobs were completed, 466 of which were main sewer breaks, 8,464 were catch basin repairs, 3,072 were manhole repairs and 280 were inlet repairs.

Inspectors made some 186,828 inspections during the year to see to it that sewers or house drains were properly installed in compliance with Municipal Code requirements, and the staff disposed of 24,648 complaints.

Four new explosimeters were purchased during the year to be used to determine whether or not gasoline or other explosive vapors are present in the Sewer System. Where dangerous concentrations of explosive liquid or vapor are found, arrangements are made for immediate flushing of the sewers in the area until they are cleared.

The Chicago Bench Monument System is maintained by the Bureau and, during the year, 19 new bench monuments were constructed. Approximately 64 miles of precise levels were run to establish the vertical elevations of 73 bench monuments and ordinary benches. Survey crews established 147 street grades which were approved by the City Council.



# DEPARTMENT OF WATER AND SEWERS

JAMES W. JARDINE, Commissioner of Water and Sewers

## BUREAU OF SEWERS

Thomas D. Garry (Resigned 9-16-63) ----- Deputy Commissioner for Sewers  
Edward A. Quigley (Appointed 9-16-63) ----- Deputy Commissioner for Sewers  
Thomas E. Kilroe ----- Asst. Deputy Commissioner for Sewers  
A. J. Schafmayer ----- Chief Engineer

### INSPECTION

Edward W. Hallauer ----- Asst. Chief Engineer

### DISTRICT CLEANING

John Kilroe ----- Superintendent

### CONSTRUCTION

Ralph McNamara (Retired 10-18-63) ----- Superintendent  
Thomas Cullerton ----- Foreman

### ENGINEERING

Charles E. Benson ----- Engineer  
David Goldberg ----- Engineer  
Thomas Bresnahan (Appointed 2-16-63) ----- Engineer

### ARTERIAL REPAIR AND CLEANING

Edward Gill ----- Superintendent



## 1963 MAJOR SEWER STATISTICS

### Existing Sewer System:

Miles of Sewers .....	3,948.91
Catch Basins .....	205,915
Manholes .....	141,589

### 1963 New Sewer Construction:

Miles of Sewers—all sizes .....	23.26
Catch Basins .....	1,112
Manholes .....	816

Inspections .....	186,828
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Complaints Handled .....	24,648
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### Repairs:

#### Total Number of Sewer System Repair Jobs

Completed .....	12,282
Main Sewer Breaks .....	466
Catch Basins .....	8,464
Manholes .....	3,072
Gutter Grates and Basin Outlets .....	280

### Cleaning:

Sewers Scraped—Feet .....	5,945,284
Catch Basins Cleaned .....	276,546

### Street Grades Established and Approved by City Council

147

### Standard Bench Monuments and Ordinary Benches Established

73

### Standard Bench Monuments Constructed

19

### Receipts:

House Drain Permit Fees .....	\$ 150,925
Other Permit Fees .....	37,869
Special Deposits .....	74,023
Out-of-town Sewer Connection Fees .....	63,529
Drain Layers' License Fees .....	38,175
Total Receipts .....	\$ 364,521

## ADMINISTRATION AND FUNCTIONS

The Department of Water and Sewers is divided into two major units—the Bureau of Water and the Bureau of Sewers.

The Bureau of Water provides water to all of Chicago and 61 suburbs, and bills and collects water charges for this service. The Bureau is composed of a Pumping Station Operation Division which operates 4 water intake cribs and 11 pumping stations to pump the water into the system; the Water Purification Division, which operates the water filtration plants and supervises treatment of the water to insure its safety and palatability; the Water Distribution Division, which plans, constructs and maintains the distribution system to transport the water from the pumping stations to the user; the Meter Division, which operates the water meter repair shop and maintains and checks the accuracy of the meters that measure the amount of water used by the consumers; and the Collection Division, which reads the meters, bills, collects and accounts for water charges.

The Bureau of Sewers operates and maintains Chicago's vast public sewer system. The Bureau is composed of an Engineering Division that plans and designs sewer repairs and extensions; a Cleaning Division that flushes and scrapes sewers and cleans catch basins on a district basis; a Repair Division that makes repairs to the sewer system on a district basis; a Motor Fuel Tax Division, that does both repair and cleaning work on arterial highway sewers, and an Inspection Division that supervises sewer construction and installation of connections.

## BUREAU OF WATER

Raymond D. Johnso ----- Deputy Commissioner for Water  
H. H. Gerstein ----- Chief Water Engineer  
Robert O. Waller (Appointed 6-1-63) Asst. Chief Water Engineer

### PUMPING

J. L. Weeks ----- Engineer of Water Pumping  
D. E. Kennedy ----- Asst. Engineer of Water Pumping

### PURIFICATION

J. R. Baylis (Deceased 10-31-63) Engineer of Water Purification  
O. Cullans ----- Asst. Engineer of Water Purification

### DISTRIBUTION

J. T. Garrity ----- General Superintendent  
T. F. Foley ----- Asst. General Superintendent  
W. R. Lemm ----- Engineer

### METERING

J. J. Gilleran ----- Acting Superintendent

### COLLECTION

Edward A. Nihill ----- Superintendent  
John J. Malone ----- Asst. Superintendent





## 1963 MAJOR WATER STATISTICS

### Population and Area Served (Based on reliable estimates)

#### Population supplied:

Chicago (1960 U.S. Census 3,550,404)	3,536,000
Suburban (Year-end census as revised)	965,000
Total	4,501,000

#### Area served (in square miles):

Chicago	226
Sixty-one suburbs	166
Total	392

### Per Capita Consumption

	Gallons Per Day
Chicago	258
Suburban	138
Average	232

### Chemical and Physical Qualities of Water

Total hardness (as parts per million Calcium Carbonate)	132
Water temperatures: Intake (Dever Crib)	
Average	49.3° F.
Maximum	68.0° F.
Minimum	32.0° F.

### Pumpage

	Gallons
Annual	
Chicago	333,542,000,000
Suburban communities and industries (metered)	47,503,000,000
Total*	381,045,000,000

\*(Amount through

Western Ave. Reservoir.....1,697,000,000)

#### Annual Metered Consumption

in Chicago (48.2%† of Chicago pumpage)	160,638,000,000
†(Percentage of Revenue from Metered rates 78.56%)	

#### Daily

Total daily average	1,043,960,000
Maximum day, July 1	1,450,000,000
Maximum hour (rate) July 1, 4:00 P.M.	1,853,000,000
Daily Average—Chicago	913,810,000
Daily Average—Suburban	130,150,000

### Purity Control

#### Laboratory samples examined:

Bacteriological Laboratory	42,609
Chemical Laboratory	169,057
Microscopically for plankton	7,828
Electron Microscope	5,679
Total samples examined	225,173

### Bacteriological Results

#### Annual average coliform organisms per 100 ml\*

	South District (filtered)	North & Central District (chlorinated only)
Raw	200.8	21.2
Plant outlet	0.001	—
Pumping stations	0.015	0.08
Distribution system	0.02	0.15

\*(U. S. Public Health Service Standard for safe drinking water permits a maximum average of 1.0 coliform organisms per 100 ml.)

### Purification Treatment

	Gallons
Complete Filtration Treatment	139,993,500,000
Chlorination Treatment only	242,755,270,000

### Chemicals Applied—Tons

	Filtration Treatment	Chlorination Only
Chlorine	1,457	1,425
Aluminum Sulfate (as Al)	501	—
Activated Carbon	1,597	—
Lime	2,457	—
Ferrous Sulfate (as Fe)	590	—
Anhydrous Ammonia	159	—
Sodium Silicate	52	—
Hydrofluosilicic Acid (23%)	2,638	4,213
(As Fluorine)	480	767

### Supply

Crib intakes in service	4
Emergency shore intake	2
Miles of water supply tunnels under lake and land (6 to 16 feet in diameter)	74.6

### Pumping

Pumping stations	11
Pumps available for service	55
Installed pumping capacity (Million gallons per day)	3,030

### Annual Pumpage

	Million Gallons
By electrically driven pumps	144,279
By steam driven pumps	236,766
Total annual pumpage	381,045
Coal used by steam powered pumps (tons)	135,767
Electric power used by electrically powered pumps. (kilowatt hrs.)	71,981,200

### Distribution

Water Mains: (in miles)	
In use—December 31, 1963	4,058.45
Extended	27.42
Abandoned	9.88
Net addition to system	17.54
Diameter of pipe (inches)	4 to 60

#### Fire Hydrants:

In use—December 31, 1963	45,371
Installed	231
Abandoned	99
Net Increase	132

#### Gate Valves:

In use—December 31, 1963	41,459
Installed	597
Abandoned	299
Net Increase	298

Pressure range in mains (lbs. per square inch)	22-55
Average pressure at curb (lbs. per square inch)	38
Miles of pipe tested for underground leakage	1023.30
Premises inspected—house to house leakage survey	34,980
Repaired main breaks—4 inch to 30 inch in diameter	334

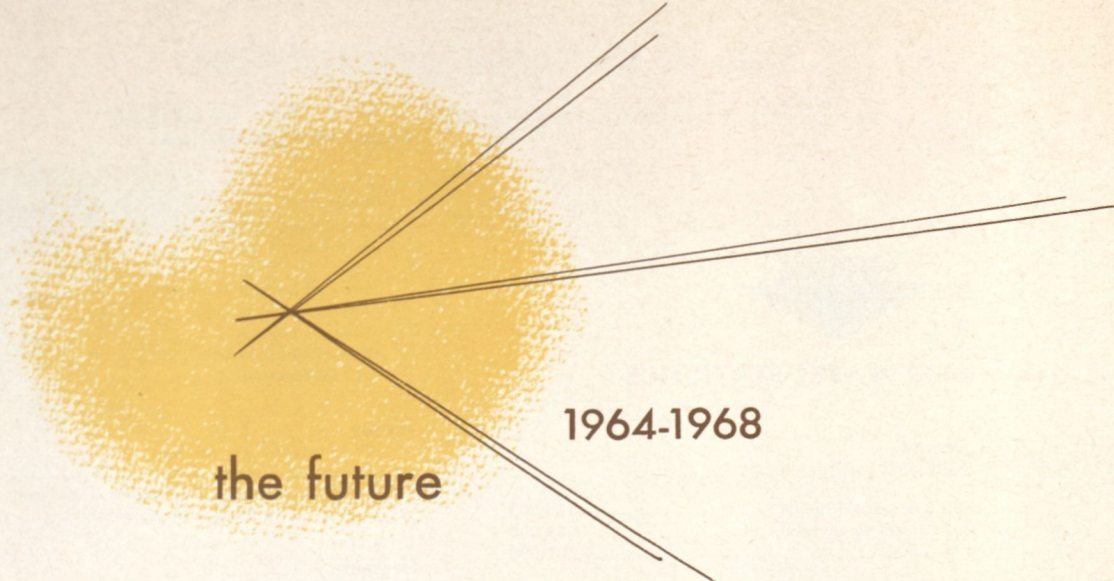
Note: All figures adjusted to conform to  
inventory made during 1961-62, in-  
cluding revisions made subsequently.

### Meters:

In service—December 31, 1963	159,885
Installed by master plumbers	1,543
Installed by Water Distribution Division	3,669
Total	5,212
Removed	2,411
Net increase	2,801
Repaired on premises	20,244
Repaired in shops	16,964
Tested	24,625
Non-metered (assessed rate) services	344,138
Total Services (assessed & metered)	504,023

Supplements covering complete 1963 water  
or sewer statistics are available upon request.





the future

1964-1968

# PRELIMINARY FIVE-YEAR WATER WORKS CAPITAL IMPROVEMENT PROGRAM 1964-1968

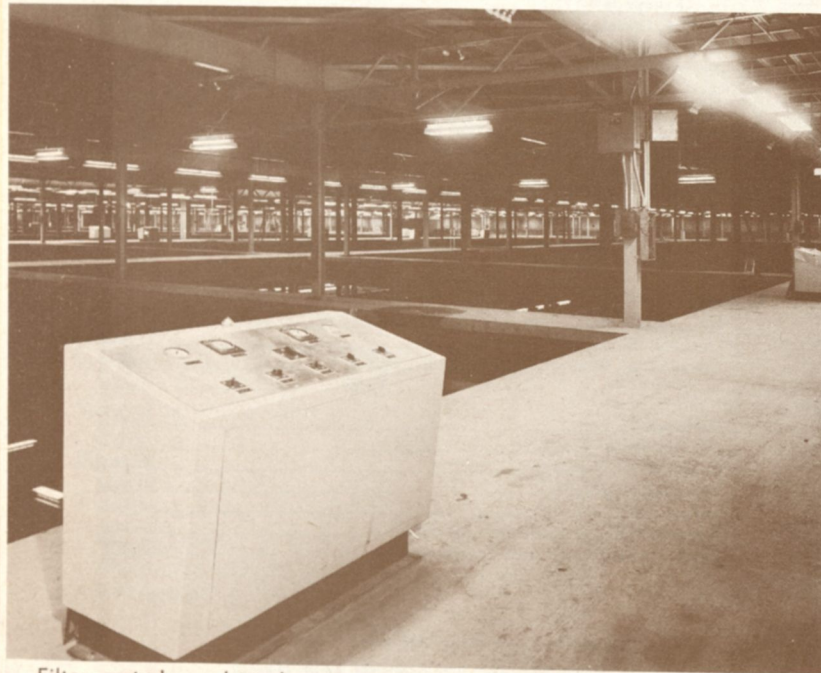
Each year, in cooperation with the Departments of Public Works and City Planning, the Department of Water and Sewers develops a water works capital improvement construction program for the coming five years. For the five-year period, 1964-1968, the preliminary program has been developed and it calls for a total estimated expenditure of \$63,449,000.

The proposed capital improvement expenditures include \$1,950,000 for water tunnels and shafts; \$16,920,000 for filtration plants; \$14,209,000 for pumping stations, and \$30,370,000 for water main construction. The major specific outlays proposed, include \$12,870,000 to complete the huge Central District Filtration Plant; \$4,050,000 to expand by fifty percent the capacity of the South District Filtration Plant,

and \$2,015,000 to construct a replacement for the obsolete Lake View Pumping Station.

The present Capital Improvements Program is designed to increase the capacity of the Chicago Water Works System to keep its capabilities in gear with the current population and industrial demands as well as those of the future through the years to 1980.

The 1964-1968 program as summarized above is subject to annual revisions and approval by the City Council of Chicago. The figures given are preliminary estimates of the proposed expenditures. The finalized program and estimates will be included in the City of Chicago Five-Year Capital Improvement Program 1964-1968 published by the Department of City Planning as approved by the City Council.

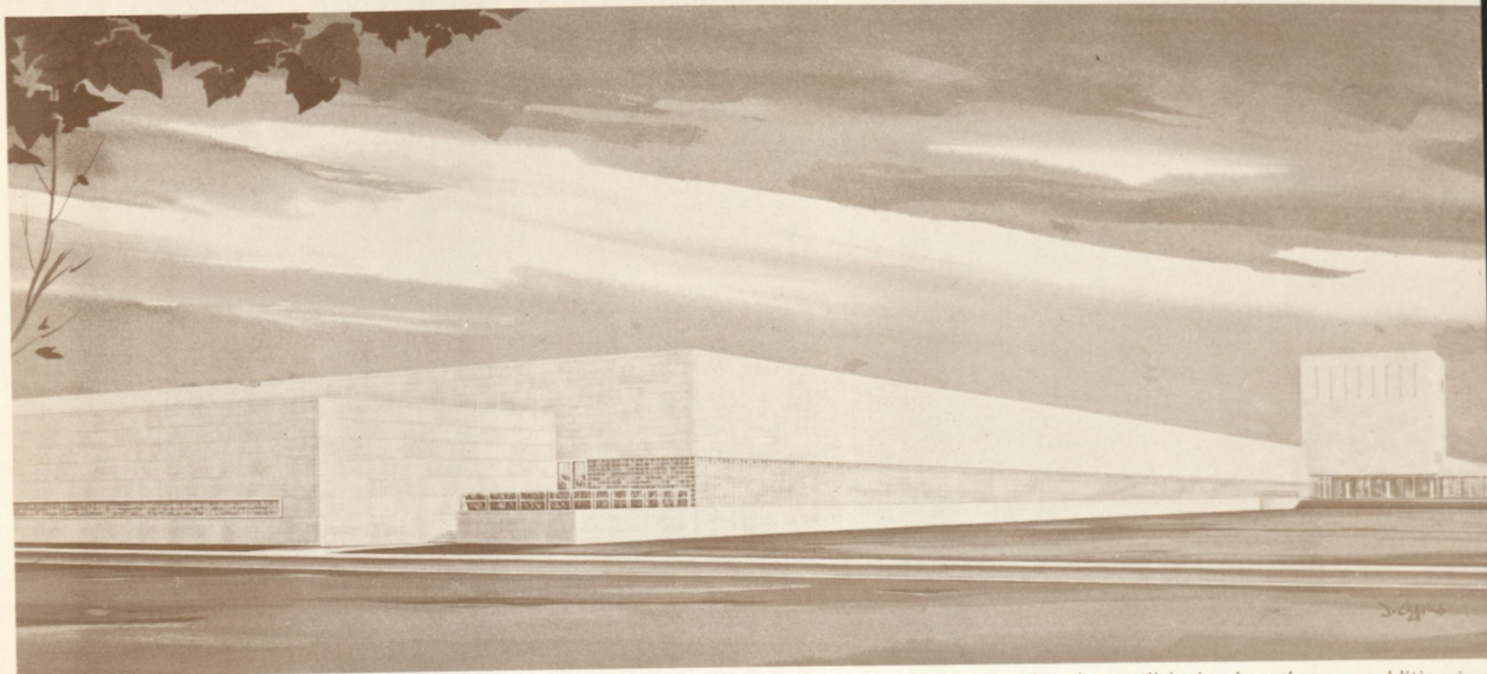


Filter control panel at the new Central District Filtration Plant.



Forty eight inch feeder main being installed in the existing LaSalle Street Tunnel under the Chicago River.





South District Filtration Plant Expansion—This rendering shows how the plant will look when the new addition is completed. This addition will expand the plant's 600 million gallons per day peak capacity by fifty per cent.

The new Central District Filtration Plant—This huge plant, located near Navy Pier will supply pure filtered water to three million residents in the north and west section of Chicago and about thirty adjacent suburbs. It will have a peak capacity of 1 billion 700 million gallons per day and will be the world's largest filtration plant.

